

Application No.10/526,343
Attorney Docket Number: 00-047
Response dated January 29, 2009
Reply to Office Action of July 30, 2008

REMARKS:

Claims 1-24 are pending in this application, of which Claims 13-24 are withdrawn from consideration and Claims 1-12 stand rejected. The Applicants respectfully request reconsideration of Claims 1-12 in view of the Remarks provided below.

The present invention relates to calcium carbonate products for use in coating compositions (Claims 1-6) and a paper coating pigment (Claims 7-12). The products of the present invention contain different calcium carbonate particle size constituents which, when used in coating compositions and pigment formulations, provide improved properties to paper and paperboard products. Such improvements include, but are not limited to, increased sheet gloss of the resultant paper and paperboard products that incorporate the calcium carbonate products recited.

Claims 1-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fortier et al. (U.S. Patent No. 6,156, 286) in view of Suitch et al. (U.S. Patent No. 5,068,276). Claims 1-12 were also rejected under 35 U.S.C. 103(a) as being unpatentable over allegedly admitted prior art in page 7 of the specification in view of Suitch et al. Claims 1-12 were further rejected under 35 U.S.C. 103(a) as being unpatentable over Yaniv (WO 01/66467) in view of Suitch et al.

The primary references cited, namely, Fortier et al., the allegedly admitted prior art, and Yaniv, are each relied upon as generally disclosing aragonitic calcium carbonate particles. Fortier et al. discloses the production of fine-grained precipitated calcium carbonate by seeding with a coarse-grained aragonite precipitated calcium carbonate. Although the resultant fine-grained product is stated as having a median particle size ranging from between 0.3 and 0.5 microns, Applicants submit that, as a preliminary matter, this is not a composition having first and second calcium particles with respective first and second particle size distribution means having a difference of about 0.1 microns to about 0.2 microns. Even assuming that there is a

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second size distribution of calcium carbonate present, Fortier et al. does not disclose the size distribution of particles as recognized by the Examiner.

With respect to the allegedly “admitted prior art in page 7 of the specification,” Applicants respectfully traverse this assertion because no admission was made with respect to a “blend of calcium carbonate” as being in the prior art. The reference to Page 7 of the specification (which Applicants note falls within the “Detailed Description of the Invention”) discloses that the Assignee’s commercially available OPACARB® A40 PCC and OPACARB® A50 PCC that can be used as component calcium carbonate particles, should an exemplary blending approach for making the claimed products be chosen. Thus, while these individual PCC products each have an mean particle size (i.e., of 0.4 and 0.5 microns, respectively), neither of them alone provide a product having both first and second calcium particles with respective first and second particle size distribution means having a difference of about 0.1 microns to about 0.2 microns. Moreover, the Examiner recognizes that the reference made to the OPACARB® A40 PCC and OPACARB® A50 PCC products do not mention the utilization of the specific “size distribution as claimed.”

Yaniv et al. discloses the use of calcium carbonates particles exhibiting sizes in the range 0.2 – 0.4 μm are useful in paper coating and filling. It is known in optical physics that visible light is optimally scattered by particles smaller than the wavelength of the incident light. Given that the shortest wavelength in the visible spectrum is about 400 nm which is equal to 0.4 μm , Yaniv et al. merely recites what is well-known in selecting a size range of particles to enhance light scattering properties. As recognized by the Examiner, Yaniv et al. does not disclose any proportions of different size particles.

As none of the primary references disclose the Applicants’ claimed compositions having the particle sizes and proportions recited, Suitch et al. is relied on to cure these deficiencies. The grounds of rejection assert that “it would have been obvious to utilize the proper size and size distribution” claimed because:

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“Suitch et al. . . .disclose that in order to obtain a composition comprising calcium carbonate particles having an increased packing density and a dispersion thereof which has low viscosity and high concentration, it has been found to use two kinds of microscopic calcium carbonate particles with specific and uniform particle sizes and shapes and with sizes different from each other but with a specific relationship which are blended in a specific proportion and compounded with constant amounts of a certain kind of dispersant and inorganic electrolyte (Column 4, Lines 55-64).” (Emphasis Provided)

Applicants note that the referenced passage appears in the “Background of the Invention” of Suitch et al. and discusses the teachings of Japanese Kokai Patent No. SHO 57(1982)-184430, a copy of which is enclosed herewith (which Applicants respectfully request be made of record by the Examiner). This Japanese patent reference pertains to the blending of particles to provide fluid dispersions having a high packing concentration (i.e., packing density) with good rheology (flow characteristics). The best packing and rheology for such dispersions are achieved when the particles are sufficiently different in size so as to allow smaller particles to intersperse themselves in the voids between larger particles. For this to occur, the smaller particles must necessarily be of a size significantly smaller than the larger particles, which teaches away from the Applicants’ claimed compositions having first and second calcium carbonate particles with only about 0.1 to about 0.2 micron difference between the means of their particle size distributions. Thus, the “proper size and size distribution” that one having ordinary skill in the art would have been motivated to use based on the quoted teaching of Suitch et al. would be particles having diverging rather than converging particle size distribution means.

A *prima facie* case of obviousness requires a showing of why the claimed combination of each of the elements of a claimed invention would have been in the purview of the person having ordinary skill in the art at the time the invention was made and, that the proffered combination would result in the claimed product. None of the references, whether taken alone or in combination, teach or suggest Applicants’ compositions comprising first and second particle size distribution means that differ by about 0.1 microns to about 0.2 microns. The Patent Office has not made a *prima facie* case of obviousness, therefore, Applicants respectfully submit that Claims 1-12 are allowable.

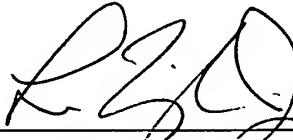
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In view of the foregoing remarks, Applicants respectfully submit that Claims 1-12 are allowable, which action is earnestly solicited. Applicants submit that this application is in condition for allowance, and respectfully request early notification to that effect. The Examiner is invited to telephone the undersigned attorney in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

The Assistant Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **13-3639**.

Respectfully submitted,

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